



[6450-01-P]

DEPARTMENT OF ENERGY

10 CFR Parts 429 and 431

[Docket No. EERE-2011-BT-TP-0024]

RIN: 1904-AC46

Energy Conservation Program: Alternative Efficiency Determination Methods, Basic Model Definition, and Compliance for Commercial HVAC, Refrigeration, and WH Equipment

AGENCY: Office of Energy Efficiency and Renewable Energy, Department of Energy.

ACTION: Supplemental Notice of Proposed Rulemaking (SNOPR).

SUMMARY: The U.S. Department of Energy (DOE) is proposing to revise and expand its existing regulations governing the use of particular methods as alternatives to testing for the purposes of certifying compliance with the applicable energy conservation standards and the reporting of related ratings for commercial and industrial equipment covered by EPCA. The proposals contained in this supplemental notice arose from a negotiated rulemaking effort on issues regarding certification of commercial heating, ventilating, air-conditioning (HVAC), water heating (WH), and refrigeration equipment. In addition, DOE is proposing to amend the compliance dates for the initial certification of commercial HVAC, WH, and refrigeration equipment.

DATES: DOE will accept comments, data, and information regarding this supplemental notice of proposed rulemaking (SNOPR) no later than **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. See section VI, “Public Participation,” of this SNOPR for details.

ADDRESSES: Interested persons are encouraged to submit comments using the Federal eRulemaking Portal at <http://www.regulations.gov>. Follow the instructions for submitting comments. Alternatively, interested persons may submit comments, identified by docket number EERE–2011–BT–TP–0024, by any of the following methods:

- E-mail: to AEDM/ARM-2011-TP-0024@ee.doe.gov. Include EERE–2011–BT–TP–0024 in the subject line of the message.
- Mail: Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Office, Mailstop EE–2J, Alternative Efficiency Determination Methods, Basic Model Definition, and Compliance for Commercial HVAC, Refrigeration, and WH Equipment, EERE–2011–BT–TP–0024, 1000 Independence Avenue, SW., Washington, DC 20585– 0121.
Phone: (202) 586–2945. Please submit one signed paper original.
- Hand Delivery/Courier: Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Office, 6th Floor, 950 L’Enfant Plaza, SW., Washington, DC 20024.
Phone: (202) 586–2945. Please submit one signed paper original.

Instructions: All submissions received must include the agency name and docket number or RIN for this rulemaking.

Docket: For access to the docket to read background documents, or comments received, go to the Federal eRulemaking Portal at <http://www.regulations.gov>.

FOR FURTHER INFORMATION CONTACT:

Ms. Ashley Armstrong, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Office, EE-2J, 1000 Independence Avenue, SW., Washington, DC 20585-0121. E-mail: Ashley.Armstrong@ee.doe.gov; and Ms. Laura Barhydt, U.S. Department of Energy, Office of the General Counsel, Forrestal Building, GC-32, 1000 Independence Avenue, SW, Washington, DC 20585. E-mail: Laura.Barhydt@hq.doe.gov.

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I. Authority and Background

A. Authority

Title III of the Energy Policy and Conservation Act of 1975, as amended (“EPCA” or, in context, “the Act”) sets forth a variety of provisions designed to improve energy efficiency. Part A of Title III (42 U.S.C. 6291–6309) provides for the Energy Conservation Program for Consumer Products Other Than Automobiles. The National Energy Conservation Policy Act (NECPA), Pub. L. 95-619, amended EPCA to add Part A-1 of Title III, which established an

energy conservation program for certain industrial equipment. (42 U.S.C. 6311–6317)¹ The Department of Energy (“DOE”) is charged with implementing these provisions.

Under EPCA, this program consists essentially of four parts: (1) testing; (2) labeling; (3) Federal energy conservation standards; and (4) certification and enforcement procedures. The Federal Trade Commission (FTC) is primarily responsible for labeling of consumer products, and DOE implements the remainder of the program. The testing requirements consist of test procedures that manufacturers of covered products and equipment must use (1) as the basis for certifying to DOE that their products comply with the applicable energy conservation standards adopted under EPCA, and (2) for making representations about the efficiency of those products and equipment. Similarly, DOE must use these test requirements to determine whether the products comply with any relevant standards promulgated under EPCA. For certain consumer products and commercial equipment, DOE’s existing testing regulations allow the use of an alternative efficiency determination method (AEDM) or an alternative rating method (ARM), in lieu of actual testing, to simulate the energy consumption or efficiency of certain basic models of covered products under DOE’s test procedure conditions.

In addition, sections 6299-6305, and 6316 of EPCA authorize DOE to enforce compliance with the energy and water conservation standards (all non-product specific references herein referring to energy use and consumption include water use and consumption; all references to energy efficiency include water efficiency) established for certain consumer

¹ For editorial reasons, Parts B (consumer products) and C (commercial equipment) of Title III of EPCA were re-designated as parts A and A-1, respectively, in the United States Code.

products and commercial equipment. (42 U.S.C. 6299-6305 (consumer products), 6316 (commercial equipment)) DOE has promulgated enforcement regulations that include specific certification and compliance requirements. *See* 10 CFR part 429; 10 CFR part 431, subparts B, U, and V.

B. Background

On March 7, 2011, DOE published a final rule in the **Federal Register** that, among other things, modified the requirements regarding manufacturer submission of compliance statements and certification reports to DOE (hereafter referred to as the March 2011 Final Rule). 76 FR 12421. This rule, among other things, imposed new or revised reporting requirements for some types of covered products and equipment, including a requirement that manufacturers submit annual reports to the Department certifying compliance of their basic models with applicable standards. *See* 76 FR 12428–12429 for more information.

In response to the initial deadline for certifying compliance imposed on commercial heating, ventilation, and air conditioning (HVAC), water heater (WH), and commercial refrigeration equipment (CRE) manufacturers by the March 2011 Final Rule, certain manufacturers of particular types of commercial and industrial equipment stated that, for a variety of reasons, they would be unable to meet that deadline. DOE initially extended the deadline for certifications for commercial HVAC, WH, and refrigeration equipment in a final rule published June 30, 2011 (hereafter referred to as the June 2011 Final Rule). 76 FR 38287 (June 30, 2011). DOE subsequently extended the compliance date for certification by an additional 12 months to December 31, 2013, for these types of equipment (December 2012 Final

Rule) to allow, among other things, the Department to explore the negotiated rulemaking process for this equipment. 77 FR 72763.

In the summer of 2012, DOE had an independent convener evaluate the likelihood of success, analyzing the feasibility of developing certification requirements for commercial HVAC, WH, and CRE (not including walk-in coolers and freezers) through consensus-based negotiations among affected parties. In October 2012, the convener issued his report based on a confidential interview process involving forty (40) parties from a wide range of commercial HVAC, WH, and refrigeration equipment interests. Ultimately, the convener recommended that, with the proper scope of issues on the table surrounding commercial HVAC, WH, and refrigeration equipment certification, a negotiated rulemaking appeared to have a reasonable likelihood of achieving consensus based on the factors set forth in the Negotiated Rulemaking Act because the interviewed parties believed the negotiated rulemaking was superior to notice and comment rulemaking for certification-related issues. Additional details of the report can be found at

https://www1.eere.energy.gov/buildings/appliance_standards/pdfs/convening_report_hvac_cre_1.pdf.

On February 26, 2013, members of the Appliance Standards and Rulemaking Federal Advisory Committee (ASRAC) unanimously decided to form a working group to engage in a negotiated rulemaking effort on the certification of HVAC, WH, and commercial refrigeration equipment. A notice of intent to form the Commercial Certification Working Group was published in the **Federal Register** on March 12, 2013, to which DOE received 35 nominations.

78 FR 15653. On April 16, 2013, the Department published a notice of open meeting that announced the first meeting and listed the 22 nominations that were selected to serve as members of the Working Group, in addition to two members from ASRAC, and one DOE representative. 78 FR 22431. The members of the Working Group were selected to ensure a broad and balanced array of stakeholder interests and expertise, and included efficiency advocates, manufacturers, a utility representative, and third party laboratory representatives.

AEDMs are computer modeling or mathematical tools that predict the performance of non-tested basic models. They are derived from mathematical models and engineering principles that govern the energy efficiency and energy consumption characteristics of a type of covered equipment. These computer modeling and mathematical tools, when properly developed, can provide a relatively straight-forward and reasonably accurate means to predict the energy usage or efficiency characteristics of a basic model of a given covered product or equipment and reduce the burden and cost associated with testing.

Where authorized by regulation, AEDMs enable manufacturers to rate and certify their basic models by using the projected energy use or energy efficiency results derived from these simulation models in lieu of testing. DOE has authorized the use of AEDMs for certain covered products and equipment that are difficult or expensive to test in an effort to reduce the testing burden faced by manufacturers of expensive or highly customized basic models. DOE's regulations currently permit manufacturers of commercial HVAC, WHs, distribution transformers, electric motors, and small electric motors to use AEDMs to rate their non-tested combinations provided they meet the Department's regulations governing such use.

Initially, DOE undertook a conventional rulemaking to consider expanding and revising its regulations for AEDMs. On April 18, 2011, DOE published a Request for Information (hereafter referred to as the April 2011 RFI). 76 FR 21673. The April 2011 RFI requested suggestions, comments, and information relating to the Department's intent to expand and revise its existing AEDM and ARM requirements. In response to comments it received on the April 2011 RFI, DOE published a Notice of Proposed Rulemaking (NPR) in the **Federal Register** on May 31, 2012 (hereafter referred to as the May 2012 NPR). 77 FR 32038. DOE proposed to permit AEDM-based ratings and certifications for additional types of equipment, such as commercial refrigeration equipment (CRE), automatic commercial ice makers (ACIMs), beverage vending machines (BVMs), and walk-in cooler and freezer (WICF) refrigeration systems. 77 FR 32055. Furthermore, DOE proposed a number of requirements that manufacturers would need to meet in order to use an AEDM. DOE also proposed a method that it would employ to determine if an AEDM had been used appropriately by a manufacturer along with the consequences if it had not been. 77 FR 32055-32056.

During the Working Group's first meeting, Working Group members voted to expand the scope of the negotiated rulemaking efforts to include developing methods of estimating equipment performance based on AEDM simulations. The issues discussed by the various participants during the negotiations with DOE were those raised by the commenters in response to the May 2012 NPR. The discussion of those issues in the negotiated rulemaking and the consensus reached as proposed in this supplemental NPR are summarized in two documents included in the docket of this proposal and constitute DOE's response to the comments on the

May 2012 NOPR. The documents discuss the particular elements that the AEDM simulations for each equipment should address and other related considerations of note, including potential basic model definitions, test procedure issues, the treatment of certain features, and certification of these equipment. See

<http://www.regulations.gov/#!docketBrowser;rpp=25;po=0;dct=SR;D=EERE-2013-BT-NOC-0023>.

As required, the Working Group submitted an interim report to ASRAC on June 26, 2013, summarizing the group's recommendations regarding AEDMs for commercial HVAC, WH, and refrigeration equipment. The interim report to ASRAC can be found at <http://www.regulations.gov/#!documentDetail;D=EERE-2013-BT-NOC-0023-0046>. ASRAC subsequently voted unanimously to approve the recommendations in the interim report for AEDMs. Subsequently, the Working Group submitted a final report on August 30, 2013, summarizing the Working Group's recommendations for model grouping, certification requirements and deadlines, and features to be excluded from certification, verification, and enforcement testing as long as specific conditions were met. ASRAC voted unanimously to approve the recommendations in the final report. In this notice of proposed rulemaking, DOE is proposing to adopt the Working Group's recommendations, without modification, for AEDMs, basic model definitions, and the initial compliance date for certification. DOE will be addressing the remaining Working Group's recommendations for certification requirements, and for the treatment of specific features when testing, in a separate rulemaking or guidance document.

II. Discussion of Specific Revisions to DOE's Regulations for Alternative Efficiency

Determination Methods and Alternative Rating Methods

On May 14-15, 2013, the Commercial Certification Working Group held a two-day meeting at the U.S. Department of Energy's headquarters in Washington, DC. 69 interested parties, including members of the Working Group, attended. The Working Group's recommendations are presented in this notice of proposed rulemaking. A more detailed discussion of the discussions and recommendations can be found in the Commercial Certification Working Group meeting transcripts, which are located at <http://www.regulations.gov/#!docketDetail;D=EERE-2013-BT-NOC-0023>.

A. General Issues

1. Pre-Approval

The Commercial Certification Working Group unanimously recommended that DOE not require pre-approval for AEDMs for commercial HVAC, WH, or refrigeration equipment. This recommendation is consistent with DOE's proposal in the May 21, 2012, notice of proposed rulemaking amending AEDM requirements. 77 FR 32038. Thus, DOE is not proposing to adopt a pre-approval process for AEDMs for the aforementioned equipment.

2. Applicable Equipment

The Commercial Certification Working Group unanimously recommended the following types of covered equipment be allowed to use AEDMs.

- Commercial HVAC Equipment

- Commercial packaged air-conditioning and heating equipment (air-cooled, water-cooled, evaporatively-cooled, and water-source)
- Packaged terminal air conditioners and heat pumps
- Computer room air conditioners
- Single package vertical air conditioners and heat pumps
- Variable refrigerant flow systems
- Commercial packaged boilers
- Commercial warm-air furnaces
- Commercial WH Equipment
 - Commercial electric storage water heaters
 - Commercial gas-fired and oil-fired storage water heaters
 - Commercial gas-fired and oil-fired instantaneous water heaters greater than or equal to 10 gallons
 - Commercial gas-fired and oil-fired hot water supply boilers greater than or equal to 10 gallons
 - Commercial gas-fired and oil-fired instantaneous water heaters less than 10 gallons
 - Commercial gas-fired and oil-fired hot water supply boilers less than 10 gallons
 - Commercial unfired hot water storage tanks
- Commercial Refrigeration Equipment

DOE currently allows the use of AEDMs for commercial HVAC equipment and water heating equipment. In this notice of proposed rulemaking, DOE proposes, in alignment with the

Working Group’s recommendation, to also permit manufacturers to use AEDMs when certifying CRE.

B. Validation

Prior to use for certifying the energy efficiency or energy use of a basic model, DOE generally requires AEDMs to be validated. The Commercial Certification Working Group recommended the following validation process for AEDMs, which DOE proposes to adopt in today’s notice.

1. Number of Tested Units Required for Validation

To validate an AEDM, a manufacturer must select the minimum number of basic models, specified in Table II.1 through Table II.5, for each of the validation classes to which the AEDM is going to apply. Each selection represents a single test conducted in accordance with the DOE test procedure (TP) or applicable DOE TP waiver at a manufacturer’s testing facility or a third-party testing facility, whose test result is directly compared to the result for that model from the AEDM.

Table II.1: Commercial HVAC Validation Classes

Validation Class	Minimum Number of Basic Models that Must be Tested per AEDM
Air-Cooled, Split and Packaged Air Conditioners (ACs) and Heat Pumps (HPs) less than 65,000 Btu/h Cooling Capacity (3-Phase)	2 Basic Models
Air-Cooled, Split and Packaged ACs and HPs greater than or equal to 65,000 Btu/h Cooling Capacity and Less than 760,000 Btu/h Cooling Capacity	2 Basic Models
Water-Cooled, Split and Packaged ACs and HPs, All Cooling Capacities	2 Basic Models
Evaporatively-Cooled, Split and Packaged ACs and	2 Basic Models

HPs, All Capacities	
Water-Source HPs, All Capacities	2 Basic Models
Single Package Vertical ACs and HPs	2 Basic Models
Packaged Terminal ACs and HPs	2 Basic Models
Air-Cooled, Variable Refrigerant Flow ACs and HPs	2 Basic Models
Water-Cooled, Variable Refrigerant Flow ACs and HPs	2 Basic Models
Computer Room Air Conditioners, Air Cooled	2 Basic Models
Computer Room Air Conditioners, Water-Cooled	2 Basic Models

Table II.2: Commercial Water Heaters Validation Classes

Validation Class	Minimum Number of Basic Models that Must be Tested
Gas-fired Water Heaters and Hot Water Supply Boilers Less than 10 Gallons	2 Basic Models
Gas-fired Water Heaters and Hot Water Supply Boilers Greater than or Equal to 10 Gallons	2 Basic Models
Oil-fired Water Heaters and Hot Water Supply Boilers Less than 10 Gallons	2 Basic Models
Oil-fired Water Heaters and Hot Water Supply Boilers Greater than or Equal to 10 Gallons	2 Basic Models
Electric Water Heaters	2 Basic Models
Heat Pump Water Heaters	2 Basic Models
Unfired Hot Water Storage Tanks	2 Basic Models

Table II.3: Commercial Packaged Boilers Validation Classes

Validation Class	Minimum Number of Basic Models that Must be Tested
Gas-fired, Hot Water Only Commercial Packaged Boilers	2 Basic Models
Gas-fired, Steam Only Commercial Packaged Boilers	2 Basic Models
Gas-fired Hot Water/Steam Commercial Packaged Boilers	2 Basic Models
Oil-fired, Hot Water Only Commercial Packaged Boilers	2 Basic Models
Oil-fired, Steam Only Commercial Packaged Boilers	2 Basic Models
Oil-fired Hot Water/Steam Commercial Packaged Boilers	2 Basic Models

Table II.4: Commercial Furnaces Validation Classes

Validation Class	Minimum Number of Basic Models that Must be Tested
Gas-fired Furnaces	2 Basic Models
Oil-fired Furnaces	2 Basic Models

Table II.5: Commercial Refrigeration Equipment Validation Classes

Validation Class*	Minimum Number of Basic Models that Must be Tested
Self-Contained Open Refrigerators	2 Basic Models
Self-Contained Open Freezers	2 Basic Models
Remote Condensing Open Refrigerators	2 Basic Models
Remote Condensing Open Freezers	2 Basic Models
Self-Contained Closed Refrigerators	2 Basic Models

Self-Contained Closed Freezers	2 Basic Models
Remote Condensing Closed Refrigerators	2 Basic Models
Remote Condensing Closed Freezers	2 Basic Models

* The minimum number of tests indicated above must be comprised of a transparent model, a solid model, a vertical model, a semi-vertical model, a horizontal model, and a service-over-the counter model, as applicable based on the equipment offering. However, manufacturers do not need to include all types of these models if it will increase the minimum number of tests that need to be conducted.

A manufacturer may elect to develop multiple AEDMs per validation class and each AEDM may span multiple validation classes; however, the minimum number of tests must be maintained per validation class for each AEDM a manufacturer chooses to develop and use. An AEDM may be applied to any individual model within the applicable validation classes at the manufacturer's discretion. All documentation of test results for the models used to validate each AEDM, the AEDM results, and the subsequent comparisons to the AEDM must be maintained as part of both the test data underlying the certified rating and the AEDM validation package pursuant to 10 CFR 429.71. DOE requests comment on the minimum number of tests proposed for each validation class.

2. Tolerances

To validate the AEDM, the test results from each model required per the validation requirements described in the previous section must be compared to the simulated results from the applicable AEDM. The Commercial Certification Working Group recommended that for energy consumption metrics, the AEDM result for a model must be greater than or equal to 95 percent of the tested results for that same model. For energy efficiency metrics, the AEDM results for a model must be less than or equal to 105 percent of the tested results for that same model. DOE is proposing this one-sided 5 percent tolerance for AEDM validation for all

commercial HVAC, WH, and refrigeration equipment. DOE requests comment on the proposed tolerances on the AEDM results as compared to the tested results for a given model.

3. Certified Ratings

For each basic model of commercial HVAC, WH, and refrigeration equipment distributed in commerce, manufacturers must determine the certified rating based on testing or use of a validated AEDM. DOE's current regulations provide manufacturers with some flexibility in rating each basic model by allowing the manufacturer the discretion to rate conservatively. The Working Group recommended that for energy consumption metrics each model's certified rating must be less than or equal to the applicable Federal standard and greater than or equal to the model's AEDM result. For energy efficiency metrics, each model's certified rating must be less than or equal to the model's AEDM result and greater than or equal to the applicable Federal standard. DOE is proposing to retain the flexibility provided by its current regulatory approach and is proposing the Working Group's recommendation without modification. DOE requests comment on this method of rating.

C. DOE Verification

Once a basic model has been distributed in commerce, DOE may select any model and verify the equipment's performance at any time. 10 CFR 429.104. The Commercial Certification Working Group recommended the following process described in section II.C.1 through II.C.7 for DOE verification of certified ratings determined by an AEDM. In today's notice, DOE proposes to adopt these recommendations.

1. Witness Testing

Currently, DOE's regulations do not require a manufacturer to be present for DOE-initiated testing to verify equipment performance of a given basic model. The Working Group considered two options for witness testing when certifying a basic model. A manufacturer may elect to have a DOE representative and a manufacturer's representative on-site for the initial verification test for up to 10 percent of the manufacturer's certified basic models rated with an AEDM. The 10 percent requirement applies to all of the basic models certified by a given manufacturer no matter how many AEDMs a manufacturer has used to develop its ratings. Manufacturers who elect to select 10 percent of their basic models must include this information as part of their certification prior to the unit being selected for verification testing. In general, DOE will perform testing without a manufacturer's representative present for all basic models DOE selects for assessment testing as long as the two following conditions are met: (1) a manufacturer has not elected a given basic model as part of its 10 percent election allowed for witness testing; and (2) the manufacturer does not require the basic model to be started only by a factory-trained installer per the installation manual instructions. For the basic models for which a manufacturer elected to have the initial verification test witnessed, the manufacturer cannot request the unit be retested. The results from this initial test would be used to make a definitive determination regarding the validity of the basic model's rating. For those basic models that are initially tested without the manufacturer present, a manufacturer is automatically eligible to request a retest for those basic models where the initial results indicate a potential rating issue. DOE requests comment on the proposal for witness testing.

2. Verification Process

The Working Group negotiated the process that DOE would use to assess a unit's performance through third party testing. Under this approach, DOE would begin the verification process by selecting a single unit of a given basic model for testing either from retail or by obtaining a sample from the manufacturer. DOE will select a third-party testing laboratory at its discretion to test the unit selected. The lab will adhere to the requirements recommended by the Commercial Certification Working Group described in section II.C.3 below. DOE will conduct the test in accordance with the witness testing arrangements discussed above. In the cases where a factory-trained installer is required per the installation manual instructions or the model is a variable refrigerant flow commercial HVAC system, the manufacturer's representative and DOE will only be on-site for test set up. In all cases, the Department will be responsible for the logistics of arranging a witnessed test, and the laboratory is not allowed to communicate directly with the manufacturer.

The manufacturer will provide any additional information needed regarding test set up or testing to DOE through the certification process in pdf format. (This provision will be addressed in a separate rulemaking.) DOE will provide this information to the test facility as long as the additional instructions are not in conflict with the DOE test procedure or applicable DOE test procedure waiver. The test facility may not use any additional information during the testing process that has not been approved by DOE or shipped in the packaging of the unit. If needed, the test facility may request from DOE additional information on test set up, installation, or

testing. Upon receiving a request from the test facility for additional information, DOE may hold and coordinate a meeting with the manufacturer and the test facility to discuss the additional details needed for testing. Additional instructions may be given to the test facility as agreed upon by DOE and the manufacturer. At no time may the test facility discuss DOE verification testing with the manufacturer without the Department present.

If a unit is tested and determined to be outside the rating tolerances described in section II.C.4, DOE will notify the manufacturer. The manufacturer will receive all documentation related to the test set up, test conditions, and test results for the unit if the unit falls outside the rating tolerances. At that time, a manufacturer may present all claims regarding any issues directly associated with the test and initiate a discussion regarding retesting. If the manufacturer was not on-site for the initial test, the manufacturer may request a retest of the same unit, and DOE and the manufacturer can be present for the retest. DOE will not retest a different unit of the same basic model unless DOE and the manufacturer determine it is necessary based on the test results, claims presented, and DOE regulations. DOE requests comment on this proposal.

3. Verification Lab Requirements

The Commercial Certification Working Group recommended that all AEDM verification tests should be conducted in a third-party testing facility of DOE's choice. Commercial equipment that cannot be tested at an independent third-party facility may be tested at a manufacturer's facility upon DOE's request. DOE requests comment on this proposal.

4. Verification Tolerances

To verify the certified rating of a given model, the test results from a single unit test of the model will be compared to the certified rating in accordance with the tolerances set forth below. For energy consumption metrics, the Commercial Certification Working Group recommended:

$$\text{Test Result} \leq \text{Certified Rating} \times (1 + \text{Applicable Tolerance})$$

For energy efficiency metrics, the Commercial Certification Working Group recommended:

$$\text{Test Result} \geq \text{Certified Rating} \times (1 - \text{Applicable Tolerance})$$

DOE requests comment on the proposed tolerances.

Table II.6. Rating Tolerances

Equipment	Metric	Applicable Tolerance
Commercial Packaged Boilers	Combustion Efficiency	5% (0.05)
	Thermal Efficiency	5% (0.05)
Commercial Water Heaters or Hot Water Supply Boilers	Thermal Efficiency	5% (0.05)
	Standby Loss	10% (0.1)
Unfired Storage Tanks	R-Value	10% (0.1)
Air-Cooled, Split and Packaged ACs and HPs less than 65,000 Btu/h Cooling Capacity (3-Phase)	Seasonal Energy-Efficiency Ratio	5% (0.05)
	Heating Season Performance Factor	5% (0.05)
	Energy Efficiency Ratio	10% (0.1)
Air-Cooled, Split and Packaged ACs and HPs greater than or equal to 65,000 Btu/h Cooling Capacity and Less than 760,000 Btu/h Cooling Capacity	Energy Efficiency Ratio	5% (0.05)
	Coefficient of Performance	5% (0.05)
	Integrated Energy Efficiency Ratio	10% (0.1)
Water-Cooled, Split and Packaged ACs and HPs, All Cooling Capacities	Energy Efficiency Ratio	5% (0.05)
	Coefficient of Performance	5% (0.05)
	Integrated Energy Efficiency Ratio	10% (0.1)

Evaporatively-Cooled, Split and Packaged ACs and HPs, All Capacities	Energy Efficiency Ratio	5% (0.05)
	Coefficient of Performance	5% (0.05)
	Integrated Energy Efficiency Ratio	10% (0.1)
Water-Source HPs, All Capacities	Energy Efficiency Ratio	5% (0.05)
	Coefficient of Performance	5% (0.05)
	Integrated Energy Efficiency Ratio	10% (0.1)
Single Package Vertical ACs and HPs	Energy Efficiency Ratio	5% (0.05)
	Coefficient of Performance	5% (0.05)
Packaged Terminal ACs and HPs	Energy Efficiency Ratio	5% (0.05)
	Coefficient of Performance	5% (0.05)
Variable Refrigerant Flow ACs and HPs	Energy Efficiency Ratio	5% (0.05)
	Coefficient of Performance	5% (0.05)
	Integrated Energy Efficiency Ratio	10% (0.1)
Computer Room Air Conditioners	Sensible Coefficient of Performance	5% (0.05)
Commercial Warm-Air Furnaces	Thermal Efficiency	5% (0.05)
Commercial Refrigeration Equipment	Daily Energy Consumption	5% (0.05)

5. Invalid Rating Process

Once DOE has determined that a basic model is outside of the tolerances based on the verification process described in sections II.C.1 through II.C.4, the Commercial Working Group negotiated the following process for remedying the invalid rating. First, DOE will notify the manufacturer and the manufacturer would have 15 days to select and report one of the following pathways: (1) conservatively rerate and recertify the model based on the DOE test data only, (2) discontinue the model through the certification process, or (3) conduct additional testing, rerate, and recertify the model using all additional manufacturer test data and the DOE test data. The manufacturer and DOE will determine the specific date by which the manufacturer must

complete the process for correcting the invalid rating, but the process shall not take more than 180 days to complete. DOE requests comment on the proposed options for addressing invalid ratings.

6. Consequences of an Invalid Rating

The Commercial Working Group negotiated the consequences of DOE determining that a rating is invalid for a given basic model based on assessment testing. If the Department finds that within 24 rolling months a manufacturer has more than one basic model with an invalid rating whose results were derived from the same AEDM, then the manufacturer will be subject to the requirements listed in Table II.7. In general, to continue using the AEDM, if a manufacturer has between two and seven basic models with invalid ratings that were derived from the same AEDM, then the manufacturer must re-validate the AEDM according to the requirements in Table II.7 by conducting new testing of different basic models. If the manufacturer has eight or more basic models with invalid ratings from the same AEDM, then all the models to which the AEDM applied must be re-rated with physical testing in accordance with the applicable sampling plans in part 429. 10 CFR 429.11. DOE requests comment on these proposed consequences that would flow from an invalid rating.

Table II.7. Consequences for Invalid Ratings

Number of Invalid Certified Ratings from the same AEDM** within a rolling 24 month period†	Required Manufacturer Actions
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2	Submit different test data and reports from testing to validate that AEDM within the validation classes to which it is applied.* Adjust the rating as appropriate.
4	Conduct double the minimum number of validation tests for the validation classes to which the AEDM is applied. Note, the tests required under subsection (c)(5)(H)(1) must be different tests on different models than the original tests required under subsection (c)(2).
6	Conduct the minimum number of validation tests for the validation classes to which the AEDM is applied; And Conduct addition testing, which is equal to $\frac{1}{2}$ the minimum number of validation tests for the validation classes to which the AEDM is applied , at either the manufacturer's facility or a third-party test facility, at the manufacturer's discretion. Note, the tests required under subsection (c)(5)(H)(1) must be different tests on different models than the original tests required under subsection (c)(2).
≥ 8	Manufacturer has lost privilege to use AEDM. All ratings for models within the validation classes to which the AEDM applied should be rated via testing. Distribution cannot continue until certification(s) are corrected to reflect actual test data.

*A manufacturer may discuss with DOE's Office of Enforcement whether existing test data on different basic models within the validation classes to which that specific AEDM was applied may be used to meet this requirement.

**Where the same AEDM means a computer simulation or mathematical model that is identified by the manufacturer at the time of certification as having been used to rate a model or group of models.

† The twenty-four month period begins with a DOE determination that a rating is invalid through the process outlined above. Additional invalid ratings apply for the purposes of determining the appropriate consequences if the subsequent determination(s) is based on selection of a unit for testing within the twenty-four month period (i.e., subsequent determinations need not be made within 24 months).

7. Regaining the Use of AEDMs

If, as a result of eight or more invalid ratings, a manufacturer has lost the privilege of using an AEDM for rating purposes, the manufacturer may regain the ability to use an AEDM by (1) investigating the cause(s) for the failures, (2) identifying the root cause(s) for the failures, (3) taking corrective action to address the root cause(s), (4) validating the AEDM by performing six new tests per validation class with a minimum of two of the tests performed at a third-party test facility, and (5) obtaining DOE authorization to resume the use of the AEDM. At its discretion, DOE may reduce or waive these requirements, in which case DOE will provide public notice and a written explanation of the grounds for reducing or waiving the requirements. DOE requests comment on the proposed method for regaining the use of AEDMs.

III. Basic Model Definitions

The Working Group recommended amended basic model definitions for commercial refrigeration equipment; commercial warm air furnaces; commercial packaged boilers; and commercial water heaters. Additionally, the Working Group recommended distinct basic model definitions for each type of commercial HVAC equipment, such as packaged terminal air conditioners (PTACs) and heat pumps (PTHPs); small, large, and very large air-cooled commercial package air conditioning and heating equipment; small, large, and very large water-cooled, evaporatively-cooled, and water source commercial package air conditioning and heating equipment; single package vertical air conditioners and heat pumps (SPVUs); computer room air conditioner; and variable refrigerant flow multi-split air conditioner and heat pump with capacities greater than 65,000 Btu/h. DOE is proposing the basic model definitions by covered equipment type that were developed by the Working Group except DOE has included several clarifications to harmonize the wording of the definitions for consistency purposes, but did not change the meaning of the definitions as agreed upon by the Working Group.

IV. Discussion of Specific Revisions to the Compliance Date for Certification of Commercial HVAC, WH, and Refrigeration Equipment

The Working Group recommended that certification reports must be initially submitted for all basic models distributed in commerce according to the schedule shown in Table IV.1. After the initial certification date, DOE's existing regulations require that manufacturers certify:

(1) new basic models before distribution in commerce; (2) existing basic models, whose certified rating remains valid, annually; (3) existing basic models, whose design is altered resulting in a change in rating that is more consumptive or less efficient, at the time the design change is made; and (4) previously certified basic models that have been discontinued annually.

Table IV.1: Initial Certification Compliance Schedule

The Initial Certification Date is the Number of Months Shown Below After the AEMD Final Rule is Published in the Federal Register	Equipment Type
6	Commercial Warm Air Furnaces PTACs and PTHPs
9	Commercial gas-fired and oil-fired instantaneous water heaters less than 10 gallons Commercial gas-fired and oil-fired hot water supply boilers less than 10 gallons
12	Commercial water heaters (all others types) Small commercial packaged boilers (≤ 2.5 million Btu/h) Self-Contained CRE with solid or transparent doors
15	VRFs
18	Small, large and very large air, water, and evaporatively-cooled and water source commercial packaged ACs and HPs SPVUs CRACs Large packaged boilers (> 2.5 million Btu/h) CRE (all other types)

The Working Group also agreed to the following caveats on the schedule proposed above. If, in the separate, certification rulemaking, DOE adopts regulations that are significantly

different from the remainder of the Working Group recommendations, then the initial certification compliance dates will be based on the final rule date for the separate rulemaking effort. The Working Group agreed that in no instance should the initial certification compliance date be less than two months after the issuance of the final rule adopting the remainder of the Working Group's recommendations. Additionally, the Working Group recommended that DOE allow a six-month grace period following each certification date during which DOE will not pursue civil penalties for certification violations. The Working Group emphasized that a grace period would allow manufacturers time to gain familiarity with the certification process and remedy any problems. DOE proposes to adopt this compliance schedule in its entirety and requests comment on this approach to establishing compliance deadlines.

V. Procedural Issues and Regulatory Review

A. Review Under Executive Order 12866

The Office of Management and Budget has determined that test procedure rulemakings do not constitute "significant regulatory actions" under section 3(f) of Executive Order 12866, Regulatory Planning and Review, 58 FR 51735 (Oct. 4, 1993). Accordingly, this action was not subject to review under the Executive Order by the Office of Information and Regulatory Affairs (OIRA) in the Office of Management and Budget (OMB).

B. Review Under the Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601, et seq.) requires the preparation of an initial regulatory flexibility analysis (IRFA) for any rule that by law must be proposed for public

comment, unless the agency certifies that the rule, if promulgated, will not have a significant economic impact on a substantial number of small entities. As required by Executive Order 13272, “Proper Consideration of Small Entities in Agency Rulemaking,” 67 FR 53461 (August 16, 2002), DOE published procedures and policies on February 19, 2003, to ensure that the potential impacts of its rules on small entities are properly considered during the DOE rulemaking process. 68 FR 7990. DOE has made its procedures and policies available on the Office of the General Counsel’s website: www.gc.doe.gov. DOE reviewed the test procedures considered in today’s SNOPR under the provisions of the Regulatory Flexibility Act (RFA) and the policies and procedures published on February 19, 2003.

DOE reviewed the AEDM requirements being proposed under the provisions of the Regulatory Flexibility Act and the procedures and policies published on February 19, 2003. As discussed in more detail below, DOE found that because the provisions of this rule will not result in increased testing and/or reporting burden for manufacturers already eligible to use an AEDM and will extend AEDM use to a number of manufacturers, thus reducing their testing burden, manufacturers will not experience increased financial burden as a result of this rule.

Today’s proposal, which presents voluntary methods for certifying compliance in lieu of conducting actual physical testing, would not increase the testing or reporting burden of manufacturers who currently use, or are eligible to use, an AEDM to certify their products. Furthermore, proposed requirements for validation of an AEDM do not require more testing than that required by the AEDM provisions included in the March 7, 2011 Certification, Compliance and Enforcement Final Rule (76 FR 12422) (“March 2011 Final Rule”), and would relax

tolerances that tested products are required to meet in order to substantiate the AEDM.

DOE has also clarified in today's proposal how it intends to exercise its authority to validate AEDM performance and verify the performance of products certified using an AEDM. DOE negotiated the process with industry resulting in the proposal in today's proposed rule. Since any testing falling under this category would be DOE-initiated testing and DOE is outlining the process to determine an invalid rating in today's proposal which includes manufacturer involvement throughout, DOE does not believe that this will verification of ratings resulting from an AEDM will have a substantial impact on small businesses.

This notice of proposed rulemaking also proposes to permit the manufacturer of many other covered products who are currently not permitted to use an AEDM to certify or rate their products to have the option of doing so. Manufacturers not eligible to use AEDMs must currently test at least two units of every basic model that they produce in order to certify compliance to the Department pursuant to the March 2011 Final Rule. Today's proposal would reduce a manufacturer's testing burden by enabling these manufacturers to simulate testing based on testing data derived from a reduced number of units. While the Department believes that permitting greater use of AEDMs will reduce the affected manufacturer's test burden, their use is at the manufacturer's discretion. If, as a result of any of the proposals herein, a manufacturer believes that use of an AEDM would increase rather than decrease their financial burden, the manufacturer may choose not to employ the method. Should a manufacturer choose to abstain from using an AEDM, this proposed provision would not apply and the manufacturer would continue to remain subject to the requirements of any DOE test procedure that applies to that

product, which would result in no change in burden from that which is required currently.

Finally, DOE is proposing two aspects of regarding certification of commercial HVAC, WH, and refrigeration equipment, which should further decrease the burden of existing DOE regulations. First, DOE is proposing basic model definition that allows a manufacturer to group its individual models based on certain characteristics. The basic model definition provides the manufacturer with flexibility in making these groupings and was negotiated as part of the Working Group's meeting. Lastly, DOE is proposing to extend the initial compliance date for certification of commercial HVAC, WH, and refrigeration equipment from 6 months to 18 months from publication of this final rule as compared to the current date of December 31, 2013. This will allow manufacturer time to implement the proposals agreed to by the Working Group, if they are ultimately promulgated, prior to initially certifying their basic models.

For the reasons enumerated above, DOE is certifying that the proposed rule, if promulgated, would not have a significant impact on a substantial number of small entities.

C. Review Under the Paperwork Reduction Act

Manufacturers of the covered products addressed in today's SNOPR must certify to DOE that their equipment comply with any applicable energy conservation standards. In certifying compliance, manufacturers must test their equipment according to the applicable DOE test procedures for the given equipment type, including any amendments adopted for those test procedures, or use the AEDMs to develop the certified ratings of the basic models. DOE has established regulations for the certification and recordkeeping requirements for all covered

consumer products and commercial equipment, including the equipment at issue in this SNOPR. (76 FR 12422 (March 7, 2011)). The collection-of-information requirement for these certification and recordkeeping provisions is subject to review and approval by OMB under the Paperwork Reduction Act (PRA). This requirement has been approved by OMB under OMB Control Number 1910-1400. Public reporting burden for the certification is estimated to average 20 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the PRA, unless that collection of information displays a currently valid OMB Control Number.

D. Review Under the National Environmental Policy Act

DOE has determined that this rule falls into a class of actions that are categorically excluded from review under the National Environmental Policy Act of 1969 (42 U.S.C. 4321, et seq.) and DOE's implementing regulations at 10 CFR part 1021. Specifically, this proposed rule would adopt changes for certifying certain covered products and equipment, so it would not affect the amount, quality or distribution of energy usage, and, therefore, would not result in any environmental impacts. Thus, this rulemaking is covered by Categorical Exclusion A6 under 10 CFR part 1021, subpart D. Accordingly, neither an environmental assessment nor an environmental impact statement is required.

E. Review Under Executive Order 13132

Executive Order 13132, “Federalism,” 64 FR 43255 (August 4, 1999) imposes certain requirements on agencies formulating and implementing policies or regulations that preempt State law or that have Federalism implications. The Executive Order requires agencies to examine the constitutional and statutory authority supporting any action that would limit the policymaking discretion of the States and to carefully assess the necessity for such actions. The Executive Order also requires agencies to have an accountable process to ensure meaningful and timely input by State and local officials in the development of regulatory policies that have Federalism implications. On March 14, 2000, DOE published a statement of policy describing the intergovernmental consultation process it will follow in the development of such regulations. 65 FR 13735. DOE has examined this proposed rule and has determined that it would not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. EPCA governs and prescribes Federal preemption of State regulations as to energy conservation for the products that are the subject of today’s proposed rule. States can petition DOE for exemption from such preemption to the extent, and based on criteria, set forth in EPCA. (42 U.S.C. 6297(d)) No further action is required by Executive Order 13132.

F. Review Under Executive Order 12988

Regarding the review of existing regulations and the promulgation of new regulations, section 3(a) of Executive Order 12988, “Civil Justice Reform,” 61 FR 4729 (Feb. 7, 1996), imposes on Federal agencies the general duty to adhere to the following requirements: (1)

eliminate drafting errors and ambiguity; (2) write regulations to minimize litigation; (3) provide a clear legal standard for affected conduct rather than a general standard; and (4) promote simplification and burden reduction. Section 3(b) of Executive Order 12988 specifically requires that Executive agencies make every reasonable effort to ensure that the regulation: (1) clearly specifies the preemptive effect, if any; (2) clearly specifies any effect on existing Federal law or regulation; (3) provides a clear legal standard for affected conduct while promoting simplification and burden reduction; (4) specifies the retroactive effect, if any; (5) adequately defines key terms; and (6) addresses other important issues affecting clarity and general draftsmanship under any guidelines issued by the Attorney General. Section 3(c) of Executive Order 12988 requires Executive agencies to review regulations in light of applicable standards in sections 3(a) and 3(b) to determine whether they are met or it is unreasonable to meet one or more of them. DOE has completed the required review and determined that, to the extent permitted by law, the proposed rule meets the relevant standards of Executive Order 12988.

G. Review Under the Unfunded Mandates Reform Act of 1995

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA) requires each Federal agency to assess the effects of Federal regulatory actions on State, local, and Tribal governments and the private sector. Pub. L. No. 104-4, sec. 201 (codified at 2 U.S.C. 1531). For a proposed regulatory action likely to result in a rule that may cause the expenditure by State, local, and Tribal governments, in the aggregate, or by the private sector of \$100 million or more in any one year (adjusted annually for inflation), section 202 of UMRA requires a Federal agency to publish a written statement that estimates the resulting costs, benefits, and other effects on the national economy. (2 U.S.C. 1532(a), (b)) The UMRA also requires a Federal agency to develop an

effective process to permit timely input by elected officers of State, local, and Tribal governments on a proposed “significant intergovernmental mandate,” and requires an agency plan for giving notice and opportunity for timely input to potentially affected small governments before establishing any requirements that might significantly or uniquely affect small governments. On March 18, 1997, DOE published a statement of policy on its process for intergovernmental consultation under UMRA. 62 FR 12820; also available at www.gc.doe.gov. DOE examined today’s proposed rule according to UMRA and its statement of policy and determined that the rule contains neither an intergovernmental mandate, nor a mandate that may result in the expenditure of \$100 million or more in any year, so these requirements do not apply.

H. Review Under the Treasury and General Government Appropriations Act, 1999

Section 654 of the Treasury and General Government Appropriations Act, 1999 (Pub. L. 105-277) requires Federal agencies to issue a Family Policymaking Assessment for any rule that may affect family well-being. This proposal would not have any impact on the autonomy or integrity of the family as an institution. Accordingly, DOE has concluded that it is not necessary to prepare a Family Policymaking Assessment.

I. Review Under Executive Order 12630

DOE has determined, under Executive Order 12630, “Governmental Actions and Interference with Constitutionally Protected Property Rights” 53 FR 8859 (March 18, 1988), that this proposed regulation would not result in any takings that might require compensation under the Fifth Amendment to the U.S. Constitution.

J. Review Under the Treasury and General Government Appropriations Act, 2001

Section 515 of the Treasury and General Government Appropriations Act, 2001 (44 U.S.C. 3516 note) provides for agencies to review most disseminations of information to the public under guidelines established by each agency pursuant to general guidelines issued by OMB. OMB's guidelines were published at 67 FR 8452 (Feb. 22, 2002), and DOE's guidelines were published at 67 FR 62446 (Oct. 7, 2002). DOE has reviewed today's proposed rule under the OMB and DOE guidelines and has concluded that it is consistent with applicable policies in those guidelines.

K. Review Under Executive Order 13211

Executive Order 13211, "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use," 66 FR 28355 (May 22, 2001), requires Federal agencies to prepare and submit to OMB, a Statement of Energy Effects for any proposed significant energy action. A "significant energy action" is defined as any action by an agency that promulgated or is expected to lead to promulgation of a final rule, and that: (1) is a significant regulatory action under Executive Order 12866, or any successor order; and (2) is likely to have a significant adverse effect on the supply, distribution, or use of energy; or (3) is designated by the Administrator of OIRA as a significant energy action. For any proposed significant energy action, the agency must give a detailed statement of any adverse effects on energy supply, distribution, or use should the proposal be implemented, and of reasonable alternatives to the action and their expected benefits on energy supply, distribution, and use.

Today's proposal to establish alternate certification requirements for certain covered equipment is not a significant regulatory action under Executive Order 12866. Moreover, it would not have a significant adverse effect on the supply, distribution, or use of energy, nor has it been designated as a significant energy action by the Administrator of OIRA. Therefore, it is not a significant energy action, and, accordingly, DOE has not prepared a Statement of Energy Effects.

L. Review Under Section 32 of the Federal Energy Administration Act of 1974

Under section 301 of the Department of Energy Organization Act (Pub. L. 95-91; 42 U.S.C. 7101), DOE must comply with section 32 of the Federal Energy Administration Act of 1974, as amended by the Federal Energy Administration Authorization Act of 1977. (15 U.S.C. 788; FEAA) Section 32 essentially provides in relevant part that, where a proposed rule authorizes or requires use of commercial standards, the notice of proposed rulemaking must inform the public of the use and background of such standards. In addition, section 32(c) requires DOE to consult with the Attorney General and the Chairman of the Federal Trade Commission (FTC) concerning the impact of the commercial or industry standards on competition. Today's proposal to amend regulations relating to AEDMs does not propose the use of any commercial standards.

VI. Public Participation

A. Submission of Comments

DOE will accept comments, data, and information regarding the proposed rule no later than the date provided at the beginning of this notice of proposed rulemaking. Comments, data, and information submitted to DOE's e-mail address for this rulemaking should be provided in WordPerfect, Microsoft Word, PDF, or text (ASCII) file format. Interested parties should avoid the use of special characters or any form of encryption, and wherever possible, comments should include the electronic signature of the author. Absent an electronic signature, comments submitted electronically must be followed and authenticated by submitting a signed original paper document to the address provided at the beginning of this notice of proposed rulemaking. Comments, data, and information submitted to DOE via mail or hand delivery/courier should include one signed original paper copy. No telefacsimiles (faxes) will be accepted.

According to 10 CFR 1004.11, any person submitting information that he or she believes to be confidential and exempt by law from public disclosure should submit two copies: one copy of the document including all the information believed to be confidential and one copy of the document with the information believed to be confidential deleted. DOE will make its own determination as to the confidential status of the information and treat it according to its determination.

Factors of interest to DOE when evaluating requests to treat submitted information as confidential include (1) a description of the items, (2) whether and why such items are customarily treated as confidential within the industry, (3) whether the information is generally

known by or available from other sources, (4) whether the information has previously been made available to others without obligation concerning its confidentiality, (5) an explanation of the competitive injury to the submitting person which would result from public disclosure, (6) a date upon which such information might lose its confidential nature due to the passage of time, and (7) why disclosure of the information would be contrary to the public interest.

B. Issues on Which DOE Seeks Comment

Although DOE welcomes comments on any aspect of this proposal, DOE is particularly interested in receiving comments and views of interested parties concerning the following issues:

1. DOE requests comment on its proposal to require manufacturers to test a minimum number of models, specified in Table II.1 through Table II.5, from each validation class to which the AEDM is going to apply in order to substantiate each AEDM.

2. DOE requests comment on its proposed tolerances on AEDM results as compared to the test results for a given model.

3. DOE requests comment on its proposal to certify models rated with an AEDM between the AEDM result and the Federal standard.

4. DOE requests comment on its proposal to allow manufacturers to witness the testing of a maximum of 10 percent of their certified basic models. If a basic model is not witness tested then it can be retested at the discretion of the manufacturer according to the process outlined in section II.C.1.

5. DOE requests comment on the proposed process for validation test. This process outlines when a model can be witness tested, how additional test information can be communicated to the test lab, and how a manufacturer can request a retest.

6. DOE requests comment on its proposal that verification testing should take place a third-party test lab unless the equipment is unable to be tested at a third-party facility in which case testing may occur the manufacturer's facility.

7. DOE requests comment on the tolerances proposed in Table II.6.

8. DOE requests comment on the proposed options manufacturers may select from in order to address an invalid rating.

9. DOE requests comment on the consequences listed in Table II.7 for manufacturers found to have invalid ratings.

10. DOE requests comment on the proposed process for regaining the use of AEDMs.

VII. Approval of the Office of the Secretary

The Secretary of Energy has approved publication of today's SNOPR.

List of Subjects

10 CFR Part 429

Administrative practice and procedure, Confidential business information, Energy conservation, Reporting and recordkeeping requirements.

10 CFR Part 431

Administrative practice and procedure, Confidential business information, Energy conservation, Reporting and recordkeeping requirements.

Issued in Washington, DC, on September 30, 2013.

Kathleen B. Hogan
Deputy Assistant Secretary for Energy Efficiency
Energy Efficiency and Renewable Energy

For the reasons set forth in the preamble, DOE proposes to amend parts 429 and 431 of chapter II, subchapter D, of title 10 of the Code of Federal Regulations, as set forth below:

**PART 429 – CERTIFICATION, COMPLIANCE AND ENFORCEMENT FOR
CONSUMER PRODUCTS AND COMMERCIAL AND INDUSTRIAL EQUIPMENT**

1. The authority citation for part 429 continues to read as follows:

Authority: 42 U.S.C. 6291–6317.

2. Revise §429.12 paragraph (i) to read as follows:

§ 429.12 General requirements applicable to certification reports.

* * * * *

(i) *Compliance dates.* For any product subject to an applicable energy conservation standard for which the compliance date has not yet occurred, a certification report must be submitted not later than the compliance date for the applicable energy conservation standard. The covered products enumerated below are subject to the stated compliance dates for initial certification:

(1) Commercial warm air furnaces, packaged terminal air conditioners, and packaged terminal heat pumps, [date 6 months after date of publication of the final rule in the Federal Register];

(2) Commercial gas-fired and oil-fired instantaneous water heaters less than 10 gallons and commercial gas-fired and oil-fired hot water supply boilers less than 10 gallons, [date 9 months after date of publication of the final rule in the Federal Register];

- (3) All other types of covered commercial water heaters except those specified in paragraph (i)(2) of this section, commercial packaged boilers with input capacities less than or equal to 2.5 million Btu/h, and self-contained commercial refrigeration equipment with solid or transparent doors, [date 12 months after date of publication of the final rule in the Federal Register];
- (4) Variable refrigerant flow air conditioners and heat pumps, [date 15 months after date of publication of the final rule in the Federal Register];
- (5) Small, large, or very large air-cooled, water-cooled, evaporatively-cooled, and water-source commercial air conditioning and heating equipment, single package vertical units, computer room air conditioners, commercial packaged boilers with input capacities greater than 2.5 million Btu/h, and all other types of commercial refrigeration equipment except those specified in paragraph (i)(3) of this section, [date 18 months after date of publication of the final rule in the Federal Register].

3. Section 429.42 is amended by revising paragraph (a) to read as follows:

§ 429.42 Commercial refrigerators, freezers, and refrigerator-freezers.

(a) Determination of represented value. Manufacturers must determine the represented value, which includes the certified rating, for each basic model of commercial refrigerator, freezer, or refrigerator-freezer either by testing, in conjunction with the applicable sampling provisions, or by applying a validated AEDM.

(1) Units to be tested. (i) If the represented value for a given basic model is determined through testing, the general requirements of §429.11 are applicable; and

(ii) For each basic model selected for testing, a sample of sufficient size shall be randomly selected and tested to ensure that—

(A) Any represented value of energy consumption or other measure of energy use of a basic model for which consumers would favor lower values shall be greater than or equal to the higher of:

(1) The mean of the sample, where:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

and \bar{x} is the sample mean; n is the number of samples; and x_i is the i^{th} sample; or,

(2) The upper 95 percent confidence limit (UCL) of the true mean divided by 1.10, where:

$$UCL = \bar{x} + t_{0.95} \left(\frac{s}{\sqrt{n}} \right)$$

and \bar{x} is the sample mean; s is the sample standard deviation; n is the number of samples; and $t_{0.95}$ is the t statistic for a 95% one-tailed confidence interval with n-1 degrees of freedom (from Appendix A to subpart B of this part); and ,

(B) Any represented value of the energy efficiency or other measure of energy consumption of a basic model for which consumers would favor higher values shall be less than or equal to the lower of:

(1) The mean of the sample, where:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

and, \bar{x} is the sample mean; n is the number of samples; and x_i is the i^{th} sample; or,

(2) The lower 95 percent confidence limit (LCL) of the true mean divided by 0.90, where:

$$LCL = \bar{x} - t_{0.95} \left(\frac{s}{\sqrt{n}} \right)$$

and \bar{x} is the sample mean; s is the sample standard deviation; n is the number of samples; and $t_{0.95}$ is the t statistic for a 95% one-tailed confidence interval with n-1 degrees of freedom (from Appendix A to subpart B of this part).

(2) Alternative efficiency determination methods. In lieu of testing, a represented value of efficiency or consumption for a basic model of commercial refrigerator, freezer or refrigerator-freezer must be determined through the application of an AEDM pursuant to the requirements of §429.70 and the provisions of this section, where:

(i) Any represented value of energy consumption or other measure of energy use of a basic model for which consumers would favor lower values shall be greater than or equal to the output of the AEDM and less than or equal to the Federal standard for that basic model; and

(ii) Any represented value of energy efficiency or other measure of energy consumption of a basic model for which consumers would favor higher values shall be less than or equal to the output of the AEDM and greater than or equal to the Federal standard for that basic model.

* * * * *

4. Section 429.43 is amended by revising paragraph (a) to read as follows:

§ 429.43 Commercial heating, ventilating, air conditioning (HVAC) equipment.

(a) Determination of represented value. Manufacturers can determine the represented value, which includes the certified rating, for each basic model of commercial HVAC equipment either by testing, in conjunction with the applicable sampling provisions, or by applying a validated AEDM.

(1) Units to be tested. (i) If the represented value is determined through testing, the general requirements of §429.11 are applicable; and

(ii) For each basic model selected for testing, a sample of sufficient size shall be randomly selected and tested to ensure that—

(A) Any represented value of energy consumption or other measure of energy use of a basic model for which consumers would favor lower values shall be greater than or equal to the higher of:

(1) The mean of the sample, where:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

and, \bar{x} is the sample mean; n is the number of samples; and x_i is the i^{th} sample; Or,

(2) The upper 95 percent confidence limit (UCL) of the true mean divided by 1.05, where:

$$UCL = \bar{x} + t_{0.95} \left(\frac{s}{\sqrt{n}} \right)$$

and \bar{x} is the sample mean; s is the sample standard deviation; n is the number of samples; and $t_{0.95}$ is the t statistic for a 95% one-tailed confidence interval with n-1 degrees of freedom (from Appendix A to subpart B of this part); and,

(B) Any represented value of energy efficiency or other measure of energy consumption of a basic model for which consumers would favor higher values shall be less than or equal to the lower of:

(1) The mean of the sample, where:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

and, \bar{x} is the sample mean; n is the number of samples; and x_i is the i^{th} sample; Or,

(2) The lower 95 percent confidence limit (LCL) of the true mean divided by 0.95, where:

$$LCL = \bar{x} - t_{0.95} \left(\frac{s}{\sqrt{n}} \right)$$

and \bar{x} is the sample mean; s is the sample standard deviation; n is the number of samples; and $t_{0.95}$ is the t statistic for a 95% one-tailed confidence interval with n-1 degrees of freedom (from Appendix A to subpart B of this part).

(2) Alternative efficiency determination methods. In lieu of testing, a represented value of efficiency or consumption for a basic model of commercial HVAC equipment must be determined through the application of an AEDM pursuant to the requirements of §429.70 and the provisions of this section, where:

(i) Any represented value of energy consumption or other measure of energy use of a basic model for which consumers would favor lower values shall be greater than or equal to the output of the AEDM and less than or equal to the Federal standard for that basic model; and

(ii) Any represented value of energy efficiency or other measure of energy consumption of a basic model for which consumers would favor higher values shall be less than or equal to the output of the AEDM and greater than or equal to the Federal standard for that basic model.

* * * * *

5. Section 429.44 is amended by revising paragraph (a) to read as follows:

§ 429.44 Commercial water heating equipment.

(a) Determination of represented value. Manufacturers can determine the represented value, which includes the certified rating, for each basic model of commercial water heating equipment, either by testing, in conjunction with the applicable sampling provisions, or by applying a validated AEDM.

(1) Units to be tested. (i) If the represented value for a given basic model is determined through testing, the general requirements of §429.11 are applicable; and

(ii) For each basic model selected for testing, a sample of sufficient size shall be randomly selected and tested to ensure that—

(A) Any represented value of energy consumption or other measure of energy use of a basic model for which consumers would favor lower values shall be greater than or equal to the higher of:

(1) The mean of the sample, where:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

and, \bar{x} is the sample mean; n is the number of samples; and x_i is the i^{th} sample; Or,

(2) The upper 95 percent confidence limit (UCL) of the true mean divided by 1.05, where:

$$UCL = \bar{x} + t_{0.95} \left(\frac{s}{\sqrt{n}} \right)$$

and \bar{x} is the sample mean; s is the sample standard deviation; n is the number of samples; and $t_{0.95}$ is the t statistic for a 95% one-tailed confidence interval with n-1 degrees of freedom (from Appendix A to subpart B of this part); and,

(B) Any represented value of energy efficiency or other measure of energy consumption of a basic model for which consumers would favor higher values shall be less than or equal to the lower of:

(1) The mean of the sample, where:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

and, \bar{x} is the sample mean; n is the number of samples; and x_i is the i^{th} sample; or,

(2) The lower 95 percent confidence limit (LCL) of the true mean divided by 0.95, where:

$$LCL = \bar{x} - t_{0.95} \left(\frac{s}{\sqrt{n}} \right)$$

and \bar{x} is the sample mean; s is the sample standard deviation; n is the number of samples; and $t_{0.95}$ is the t statistic for a 95% one-tailed confidence interval with n-1 degrees of freedom (from Appendix A to subpart B of this part).

(2) Alternative efficiency determination methods. In lieu of testing, a represented value of efficiency or consumption for a basic model of commercial water heating equipment must be determined through the application of an AEDM pursuant to the requirements of §429.70 and the provisions of this section, where:

(i) Any represented value of energy consumption or other measure of energy use of a basic model for which consumers would favor lower values shall be greater than or equal to the output of the AEDM and less than or equal to the Federal standard for that basic model; and

(ii) Any represented value of energy efficiency or other measure of energy consumption of a basic model for which consumers would favor higher values shall be less than

or equal to the output of the AEDM and greater than or equal to the Federal standard for that basic model.

* * * * *

6. Section 429.70 is amended by revising paragraphs (a) and (c) to read as follows:

§429.70 Alternative methods for determining energy efficiency and energy use.

(a) General applicability of an AEDM. A manufacturer of covered products or covered equipment explicitly authorized to use an AEDM in §§429.14 through 429.54 of this subpart may not distribute any basic model of such equipment in commerce unless the manufacturer has determined the energy efficiency of the basic model, either from testing the basic model in conjunction with DOE's certification sampling plans and statistics or from applying an alternative method for determining energy efficiency or energy use (AEDM) of the basic model, in accordance with the requirements of this section. In instances where a manufacturer has tested a basic model to validate the alternative method the manufacturer may not knowingly use an AEDM to overrate the efficiency (or underrate the consumption) of a basic model.

* * * * *

(c) Alternative efficiency determination method (AEDM) for Commercial HVAC, WH, and Refrigeration Equipment -- (1) Criteria an AEDM must satisfy. A manufacturer may not apply an AEDM to a basic model to determine its efficiency pursuant to this section unless:

(i) The AEDM is derived from a mathematical model that estimates the energy efficiency or energy consumption characteristics of the basic model as measured by the applicable DOE test procedure;

(ii) The AEDM is based on engineering or statistical analysis, computer simulation or modeling, or other analytic evaluation of performance data; and

(iii) The manufacturer has validated the AEDM, in accordance with paragraph (c)(2) of this section.

(2) Validation of an AEDM. Before using an AEDM, the manufacturer must validate the AEDM's accuracy and reliability as follows:

(i) For each identified validation class specified in paragraph (c)(2)(iv) of this section to which the particular AEDM applies, the minimum number of basic models must be tested as specified in paragraph (c)(2)(iv) of this section. Using the AEDM, calculate the energy use or efficiency for each of the selected basic models. Test a single unit of each selected basic model in accordance with paragraph (c)(2)(iii) of this section. Compare the results from the single unit test and the AEDM energy use or efficiency output according to paragraph (c)(2)(ii) of this section.

(ii) Individual model tolerances. (A) For those covered products with an energy-efficiency metric, the predicted efficiency for each model calculated by applying the AEDM may not be more than five percent greater than the efficiency determined from the corresponding test of the model.

(B) For those covered products with an energy-consumption metric, the predicted energy consumption for each model, calculated by applying the AEDM, may not be

more than five percent less than the energy consumption determined from the corresponding test of the model.

(iii) Additional test unit requirements. (A) Each AEDM must be supported by test data obtained from physical tests of current models; and

(B) Test results used to validate the AEDM must meet or exceed current, applicable Federal standards as specified in part 431 of this chapter; and

(C) Each test must have been performed in accordance with the DOE test procedure specified in parts 430 or 431 of this chapter or test procedure waiver for which compliance is required at the time the basic model is distributed in commerce.

(iv) Validation classes. (A) Commercial HVAC validation classes:

Validation Class	Minimum Number of Distinct Models that Must be Tested per AEDM
Air-Cooled, Split and Packaged Air Conditioners (ACs) and Heat Pumps (HPs) less than 65,000 Btu/h Cooling Capacity (3-Phase)	2 Basic Models
Air-Cooled, Split and Packaged ACs and HPs greater than or equal to 65,000 Btu/h Cooling Capacity and Less than 760,000 Btu/h Cooling Capacity	2 Basic Models
Water-Cooled, Split and Packaged ACs and HPs, All Cooling Capacities	2 Basic Models
Evaporatively-Cooled, Split and Packaged ACs and HPs, All Capacities	2 Basic Models
Water-Source HPs, All Capacities	2 Basic Models
Single Package Vertical ACs and HPs	2 Basic Models
Packaged Terminal ACs and HPs	2 Basic Models
Air-Cooled, Variable Refrigerant Flow ACs and HPs	2 Basic Models
Water-Cooled, Variable Refrigerant Flow ACs and HPs	2 Basic Models
Computer Room Air Conditioners, Air Cooled	2 Basic Models
Computer Room Air Conditioners, Water-Cooled	2 Basic Models

(B) Commercial water heater validation classes:

Validation Class	Minimum Number of Distinct Models that Must be Tested
Gas-fired Water Heaters and Hot Water Supply Boilers Less than 10 Gallons	2 Basic Models
Gas-fired Water Heaters and Hot Water Supply Boilers Greater than or Equal to 10 Gallons	2 Basic Models

Oil-fired Water Heaters and Hot Water Supply Boilers Less than 10 Gallons	2 Basic Models
Oil-fired Water Heaters and Hot Water Supply Boilers Greater than or Equal to 10 Gallons	2 Basic Models
Electric Water Heaters	2 Basic Models
Heat Pump Water Heaters	2 Basic Models
Unfired Hot Water Storage Tanks	2 Basic Models

(C) Commercial packaged boilers validation classes:

Validation Class	Minimum Number of Distinct Models that Must be Tested
Gas-fired, Hot Water Only Commercial Packaged Boilers	2 Basic Models
Gas-fired, Steam Only Commercial Packaged Boilers	2 Basic Models
Gas-fired Hot Water/Steam Commercial Packaged Boilers	2 Basic Models
Oil-fired, Hot Water Only Commercial Packaged Boilers	2 Basic Models
Oil-fired, Steam Only Commercial Packaged Boilers	2 Basic Models
Oil-fired Hot Water/Steam Commercial Packaged Boilers	2 Basic Models

(D) Commercial furnace validation classes:

Validation Class	Minimum Number of Distinct Models that Must be Tested
Gas-fired Furnaces	2 Basic Models
Oil-fired Furnaces	2 Basic Models

(E) Commercial refrigeration equipment validation classes:

Validation Class¹	Minimum Number of Distinct Models that Must be Tested
Self-Contained Open Refrigerators	2 Basic Models
Self-Contained Open Freezers	2 Basic Models
Remote Condensing Open Refrigerators	2 Basic Models
Remote Condensing Open Freezers	2 Basic Models
Self-Contained Closed Refrigerators	2 Basic Models
Self-Contained Closed Freezers	2 Basic Models
Remote Condensing Closed Refrigerators	2 Basic Models
Remote Condensing Closed Freezers	2 Basic Models

¹ The minimum number of tests indicated above must be comprised of a transparent model, a solid model, a vertical model, a semi-vertical model, a horizontal model, and a service-over-the counter model, as applicable based on the equipment offering. However, manufacturers do not need to include all types of these models if it will increase the minimum number of tests that need to be conducted.

(4) AEDM records retention requirements. (i) If a manufacturer has used an AEDM to determine representative values pursuant to this section, the manufacturer must have available upon request for inspection by the Department records showing:

(A) The AEDM, including the mathematical model, the engineering or statistical analysis, and/or computer simulation or modeling that is the basis of the AEDM;

(B) Product information, complete test data, AEDM calculations, and the statistical comparisons from the units tested that were used to validate the AEDM pursuant to paragraph (c)(2) of this section; and

(C) Product information and AEDM calculations for each basic model to which the AEDM has been applied.

(5) Additional AEDM requirements. (i) If requested by the Department and at DOE's discretion, the manufacturer must perform at least one of the following:

(A) Conduct simulations before representatives of the Department to predict the performance of particular basic models of the product to which the AEDM was applied;

(B) Provide analyses of previous simulations conducted by the manufacturer; or

(C) Conduct certification testing of basic models selected by the Department.

(6) AEDM verification testing. DOE may use the test data for a given individual model generated pursuant to §429.104 to verify the certified rating determined by an AEDM as long as the following process is followed:

(i) Selection of units. DOE will obtain units for test from retail, where available. If units cannot be obtained from retail, DOE will request that a unit be provided by the manufacturer;

(ii) Lab requirements. DOE will conduct testing at an independent, third-party testing facility of its choosing. In cases where no third-party laboratory is capable of testing the equipment, it may be tested at a manufacturer's facility upon DOE's request.

(iii) Manufacturer participation: Testing will be performed without DOE or manufacturer representatives on-site, unless:

(A) The model is specifically required to be started only by a factory-trained installer per the installation manual instructions, in which case DOE and the manufacturer representative will only be on-site for the test set-up; or

(B) The manufacturer has elected, as part of their certification of that model, to witness testing. A manufacturer may elect to have a DOE representative and a manufacturer's representative on-site for the initial verification test for up to 10 percent of the manufacturer's certified basic models rated with an AEDM. The 10 percent requirement applies to all of the basic models certified by a given manufacturer no matter how many AEDMs a manufacturer has used to develop its ratings. Manufacturers who elect to select 10 percent of their basic models must include this information as part of their certification prior to the unit being selected for verification testing.; or

(C) The model is a variable refrigerant flow system, in which case DOE and the manufacturer representative will only be on-site for the test set-up.

(iv) Testing. All verification testing will be conducted in accordance with the applicable DOE test procedure, as well as each of the following to the extent that they apply:

(A) Any active test procedure waivers that have been granted for the basic model;

(B) Any test procedure guidance that has been issued by DOE;

(C) The installation and operations manual that is shipped with the unit;

(D) Any additional information that was provided by the manufacturer in the pdf at the time of certification; and

(E) If during test set-up or testing, the lab indicates to DOE that it needs additional information regarding a given basic model in order to test in accordance with the applicable DOE test procedure, DOE may organize a meeting between DOE, the manufacturer and the lab to provide such information. At no time during the process may the lab communicate directly with the manufacturer without DOE present.

(v) Failure to meet certified rating. If a model tests worse than its certified rating by an amount exceeding the tolerance prescribed in paragraph (c)(4)(iii)(F) of this section, DOE will notify the manufacturer. Within the timeframe allotted by DOE, the manufacturer may then:

(A) Present all claims regarding testing validity; and

(B) If the manufacturer was not on site for the initial test, may request a retest of the previously tested unit with manufacturer and DOE representatives on-site. DOE will not retest a different unit of the same basic model unless DOE and the manufacturer determine it is necessary based on the test results, claims presented, and DOE regulations.

(vi) Tolerances. (A) For consumption metrics, the result from a DOE verification test must be less than or equal to the certified rating $\times (1 + \text{the applicable tolerance})$.

(B) For efficiency metrics, the result from a DOE verification test must be greater than or equal to the certified rating \times (1 - the applicable tolerance).

Equipment	Metric	Applicable Tolerance
Commercial Packaged Boilers	Combustion Efficiency	5% (0.05)
	Thermal Efficiency	5% (0.05)
Commercial Water Heaters or Hot Water Supply Boilers	Thermal Efficiency	5% (0.05)
	Standby Loss	10% (0.1)
Unfired Storage Tanks	R-Value	10% (0.1)
Air-Cooled, Split and Packaged ACs and HPs less than 65,000 Btu/h Cooling Capacity (3-Phase)	Seasonal Energy-Efficiency Ratio	5% (0.05)
	Heating Season Performance Factor	5% (0.05)
	Energy Efficiency Ratio	10% (0.1)
Air-Cooled, Split and Packaged ACs and HPs greater than or equal to 65,000 Btu/h Cooling Capacity and Less than 760,000 Btu/h Cooling Capacity	Energy Efficiency Ratio	5% (0.05)
	Coefficient of Performance	5% (0.05)
	Integrated Energy Efficiency Ratio	10% (0.1)
Water-Cooled, Split and Packaged ACs and HPs, All Cooling Capacities	Energy Efficiency Ratio	5% (0.05)
	Coefficient of Performance	5% (0.05)
	Integrated Energy Efficiency Ratio	10% (0.1)
Evaporatively-Cooled, Split and Packaged ACs and HPs, All Capacities	Energy Efficiency Ratio	5% (0.05)
	Coefficient of Performance	5% (0.05)
	Integrated Energy Efficiency Ratio	10% (0.1)
Water-Source HPs, All Capacities	Energy Efficiency Ratio	5% (0.05)
	Coefficient of Performance	5% (0.05)
	Integrated Energy Efficiency Ratio	10% (0.1)
Single Package Vertical ACs and HPs	Energy Efficiency Ratio	5% (0.05)
	Coefficient of Performance	5% (0.05)
Packaged Terminal ACs and HPs	Energy Efficiency Ratio	5% (0.05)
	Coefficient of Performance	5% (0.05)
Variable Refrigerant Flow ACs and HPs	Energy Efficiency Ratio	5% (0.05)
	Coefficient of Performance	5% (0.05)

	Integrated Energy Efficiency Ratio	10% (0.1)
Computer Room Air Conditioners	Sensible Coefficient of Performance	5% (0.05)
Commercial Warm-Air Furnaces	Thermal Efficiency	5% (0.05)
Commercial Refrigeration Equipment	Daily Energy Consumption	5% (0.05)

(vii) Invalid rating. If, following discussions with the manufacturer and a retest where applicable, DOE determines that the testing was conducted appropriately in accordance with the DOE test procedure, the rating for the model will be considered invalid. The manufacturer must elect, within 15 days, one of the following to be completed in a time frame specified by DOE, which is never to exceed 180 days:

(A) Re-rate and re-certify the model based on DOE's test data alone; or

(B) Discontinue the model through the certification process; or

(C) Conduct additional testing and re-rate and re-certify the basic model based on all test data collected, including DOE's test data.

(viii) AEDM use. (A) If DOE has determined that a manufacturer made invalid ratings on two or more models rated using the same AEDM within a 24 month period, the manufacturer must take the action listed in the table corresponding to the number of invalid certified ratings. The twenty-four month period begins with a DOE determination that a rating is invalid through the process outlined above. Additional invalid ratings apply for the purposes of determining the appropriate consequences if the subsequent determination(s) is based on selection of a unit for testing within the twenty-four month period (i.e., subsequent determinations need not be made within 24 months).

Number of Invalid Certified Ratings from the same AEDM² within a rolling 24 month period	Required Manufacturer Actions
2	Submit different test data and reports from testing to validate that AEDM within the validation classes to which it is applied. ¹ Adjust the rating as appropriate.
4	Conduct double the minimum number of validation tests for the validation classes to which the AEDM is applied. Note, the tests required under subsection (c)(5)(H)(1) must be different tests on different models than the original tests required under subsection (c)(2).
6	Conduct the minimum number of validation tests for the validation classes to which the AEDM is applied; And Conduct addition testing, which is equal to ½ the minimum number of validation tests for the validation classes to which the AEDM is applied , at either the manufacturer's facility or a third-party test facility, at the manufacturer's discretion. Note, the tests required under subsection (c)(5)(H)(1) must be different tests on different models than the original tests required under subsection (c)(2).
≥8	Manufacturer has lost privilege to use AEDM. All ratings for models within the validation classes to which the AEDM applied should be rated via testing. Distribution cannot continue until certification(s) are corrected to reflect actual test data.

¹A manufacturer may discuss with DOE's Office of Enforcement whether existing test data on different basic models within the validation classes to which that specific AEDM was applied may be used to meet this requirement.

²Where the same AEDM means a computer simulation or mathematical model that is identified by the manufacturer at the time of certification as having been used to rate a model or group of models.

(B) If, as a result of eight or more invalid ratings, a manufacturer has lost the privilege of using an AEDM for rating, the manufacturer may regain the ability to use an AEDM by:

- (1) Investigating and identifying cause(s) for failures;
- (2) Taking corrective action to address cause(s);
- (3) Performing six new tests per validation class, a minimum of two of which must be performed by an independent, third party laboratory to validate the AEDM;

(4) Obtaining DOE authorization to resume use of the

AEDM.

* * * * *

PART 431 – ENERGY EFFICIENCY PROGRAM FOR CERTAIN COMMERCIAL AND INDUSTRIAL EQUIPMENT

7. The authority citation for part 431 continues to read as follows:

Authority: 42 U.S.C. 6291–6317.

8. Section 431.62 is amended by revising the definition of “basic model” to read as follows:

§ 431.62 Definitions concerning commercial refrigerators, freezers and refrigerator-freezers.

* * * * *

Basic model means all commercial refrigeration equipment manufactured by one manufacturer within a single equipment class, having the same primary energy source, and that have essentially identical electrical, physical, and functional characteristics that affect energy consumption.

* * * * *

9. Section 431.72 is amended by revising the definition of “basic model” to read as follows:

§ 431.72 Definitions concerning commercial warm air furnaces.

* * * * *

Basic model means all commercial warm air furnaces manufactured by one manufacturer within a single equipment class, that have the same nominal input rating and the same primary energy source (e.g. gas or oil) and that do not have any differing physical or functional characteristics that affect energy efficiency.

* * * * *

10. Section 431.82 is amended by revising the definition of “basic model” to read as follows:

§ 431.82 Definitions concerning commercial packaged boilers.

* * * * *

Basic model means all commercial packaged boilers manufactured by one manufacturer within a single equipment class having the same primary energy source (e.g., gas or oil) and that have essentially identical electrical, physical and functional characteristics that affect energy efficiency.

* * * * *

11. Section 431.92 is amended by revising the definition of “basic model” to read as follows:

§ 431.92 Definitions concerning commercial air conditioners and heat pumps.

* * * * *

Basic model includes:

(1) *Packaged terminal air conditioner (PTAC) or packaged terminal heat pump (PTHP)*

means all units manufactured by one manufacturer within a single equipment class,

having the same primary energy source (e.g., electric or gas), and which have the same or

comparable compressors, same or comparable heat exchangers, and same or comparable air moving systems that have a cooling capacity within 300 Btu/h of one another.

- (2) *Small, large, and very large air-cooled or water-cooled commercial package air conditioning and heating equipment* means all units manufactured by one manufacturer within a single equipment class, having the same or comparably performing compressor(s), heat exchangers, and air moving system(s) that have a common “nominal” cooling capacity.
- (3) *Single package vertical units* means all units manufactured by one manufacturer within a single equipment class, having the same primary energy source (e.g., electric or gas), and which have the same or comparably performing compressor(s), heat exchangers, and air moving system(s) that have a rated cooling capacity within 1500 Btu/h of one another.
- (4) *Computer room air conditioners* means all units manufactured by one manufacturer within a single equipment class, having the same primary energy source (e.g., electric or gas), and which have the same or comparably performing compressor(s), heat exchangers, and air moving system(s) that have a common “nominal” cooling capacity.
- (5) *Variable refrigerant flow systems* means all units manufactured by one manufacturer within a single equipment class, having the same primary energy source (e.g., electric or gas), and which have the same or comparably performing compressor(s) that have a common “nominal” cooling capacity and the same heat rejection medium (e.g., air or water) (includes VRF water source heat pumps).
- (6) *Small, large, and very large water source heat pump* means all units manufactured by one manufacturer within a single equipment class, having the same primary energy

source (e.g., electric or gas), and which have the same or comparable compressors, same or comparable heat exchangers, and same or comparable “nominal” capacity.

* * * * *

12. Section 431.102 is amended by revising the definition of “basic model” to read as follows:

§ 431.102 Definitions concerning commercial water heaters, hot water supply boilers, and unfired hot water storage tanks.

* * * * *

Basic model means all water heaters, hot water supply boilers, or unfired hot water storage tanks manufactured by one manufacturer within a single equipment class, having the same primary energy source (e.g., gas or oil) and that have essentially identical electrical, physical and functional characteristics that affect energy efficiency.

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